

Amendments to the Claims:

Please amend Claims 1 and 17 as indicated in the following listing of claims, which replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for reducing oxide contamination of a germanium substrate, the method comprising:
 - positioning the germanium substrate in a process chamber;
 - generating an ionic plasma from a treatment gas, the treatment gas comprising a flow of a hydrogen-containing gas; and
 - providing the plasma to the process chamber to react with GeO₂ in the germanium substrate.
2. (Original) The method recited in claim 1 wherein the plasma is generated remotely from the process chamber.
3. (Original) The method recited in claim 1 wherein the plasma is generated in the process chamber.
4. (Original) The method recited in claim 1 further comprising heating the germanium substrate to a temperature less than about 550°C.
5. (Original) The method recited in claim 1 wherein the treatment gas further comprises a flow of a diluent gas.
6. (Original) The method recited in claim 5 wherein the diluent gas comprises an inert gas.

7. (Original) The method recited in claim 5 wherein the diluent gas comprises N₂.

8. (Original) The method recited in claim 1 wherein the hydrogen-containing gas further contains nitrogen and does not contain silicon.

9. (Original) The method recited in claim 1 wherein the hydrogen-containing gas comprises ammonia.

10. (Original) The method recited in claim 1 wherein the hydrogen-containing gas comprises H₂.

11. (Original) The method recited in claim 1 further comprising generating a plasma from a protective-layer gas that comprises a flow of a silicon-containing gas to deposit a protective amorphous-silicon layer over the germanium substrate after reducing the oxide contamination of the germanium substrate.

12. (Original) The method recited in claim 11 wherein generating the plasma from the protective-layer gas comprises terminating the flow of the hydrogen-containing gas and initiating the flow of the silicon-containing gas without terminating the plasma.

13. (Original) The method recited in claim 11 wherein generating the plasma from the protective-layer gas comprises:

terminating the plasma from the treatment gas; and
thereafter, initiating the plasma from the protective-layer gas with the flow of the silicon-containing gas.

14. (Original) The method recited in claim 11 further comprising depositing an oxide layer over the protective amorphous-silicon layer.

15.. (Original) The method recited in claim 14 wherein depositing the oxide layer is performed with a plasma deposition process.

16. (Original) The method recited in claim 14 further comprising depositing a nitride layer over the protective amorphous-silicon layer.

17. (Currently Amended) A method for forming an oxide layer over a germanium substrate, the method comprising:

positioning the germanium substrate in a process chamber;

generating a first ionic plasma from a treatment gas, the treatment gas comprising a flow of ammonia;

providing the first plasma to the process chamber to react with GeO₂ in the germanium substrate;

thereafter, generating a second ionic plasma from a protective-layer gas that comprises a flow of silane and providing the second plasma to the process chamber to deposit a protective amorphous-silicon layer over the germanium substrate; and

thereafter, depositing the oxide layer over the protective amorphous-silicon layer.

18. (Original) The method recited in claim 17 further comprising heating the germanium substrate to a temperature between 350 and 550 °C while providing the first plasma to the process chamber.

19. (Original) The method recited in claim 17 wherein the treatment gas further comprises a diluent flow of an inert gas.

20. (Original) The method recited in claim 17 wherein the treatment gas further comprises a diluent flow of N₂.

21. (Original) The method recited in claim 17 wherein generating the second plasma is performed without terminating the first plasma.

22. (Original) The method recited in claim 17 further comprising terminating the first plasma prior to generating the second plasma.